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transmitting the encoded linear matrix image over the image-transforming channel is reconstructable into the encoded linear matrix image. Then the binary data is encoded into the encoded linear matrix image according to the encoding parameters.

Another embodiment of the present invention includes a method of recovering
5 binary data encoded in an encoded matrix image from a received matrix image. The method analyzes a header section of the received linear matrix image to determine image-distortion characteristics of the image data channel. The header section is decoded according to the image-distortion characteristics so as to recover the encoding parameters that were used to encode the binary data. A data section of the received linear matrix
10 image is decoded according to the encoding parameters so as to form recovered binary data.

Brief Description of the Drawings

15 The above-mentioned features of the present invention and the manner of attaining them, and the invention itself, will be best understood by reference to the following detailed description of a preferred embodiment of the invention, taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a block diagram of an embodiment of a system according to the present
20 invention for sending and receiving binary data over an image data channel;

FIG. 2 is a block diagram showing a partitioning of the system of FIG. 1 among a server, a host, and a peripheral;

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FIG. 3 is a schematic representation of a first embodiment of a server usable with the system of FIG. 2;

FIG. 4 is a schematic representation of a first embodiment of a host usable with the system of FIG. 2;

5 FIG. 5 is a schematic representation of a printer usable as the peripheral of the system of FIG. 2;

FIG. 6 is a schematic representation of a second embodiment of a server usable with the system of FIG. 2;

10 FIG. 7 is a schematic representation of a second embodiment of a host usable with the system of FIG. 2;

FIG. 8 is a schematic representation of an embodiment of an encoded linear matrix image usable with the system of FIG. 1;

FIG. 9 is a schematic representation, using exemplary data, of the encoding and decoding operations, and the image transformations, of the system of FIG. 1;

15 FIG. 10 is a top-level flowchart of an embodiment of the encoding of a linear matrix according to the present invention;

FIG. 11 is a more detailed flowchart of the defining encoding parameters of FIG. 10;

20 FIG. 12 is a more detailed flowchart of the encoding binary data into the linear matrix image of FIG. 10; and

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FIG. 13 is a top-level flowchart of an embodiment of the recovery of binary data from a received linear matrix according to the present invention.

Description of the Preferred Embodiment

5 Referring now to the drawings, there is illustrated a system and method constructed in accordance with the present invention for sending binary data over an image data channel. The binary data is first encoded into a linear matrix image, and then the encoded linear matrix image is transmitted over the image data channel. After receipt,
10 the received linear matrix image is decoded to recover the binary data.

As best understood with reference to FIG. 1, a preferred embodiment of the system 10 includes a linear matrix encoder subsystem 20 which encodes binary data 2 into an encoded linear matrix image 4. The binary data 2 is encoded into an encoded data section 4b of the encoded linear matrix image 4. The matrix image 4 also includes an
15 encoded header section 4a which has an image pattern which identifies the matrix image 4, and has parameters for decoding the encoded data section 4b. The encoded linear matrix image 4 is communicated via path 5 to an image data channel 40 for transmission, and the received linear matrix image 6 is communicated to a linear matrix decoder subsystem 60 via path 7. As will be discussed subsequently in greater detail, the received linear matrix
20 image 6 may be identical to the encoded linear matrix image 4, but more typically is transformed or distorted in some manner by the operation of image data channel 40. The linear matrix decoder subsystem 60 identifies the received linear matrix image 6 based on